MULTI-TASK INTERACTIVE WIRELESS TELECOMMUNICATIONS DEVICE

FIELD OF THE INVENTION

The present invention is directed to a multi-task interactive wireless telecommunications device, such as a cellular telephone, with multiple user-controlled displays. The multi-task display may also be a miniature computer accessory, such as a wireless personal digital assistant, palm organizer or Web-based cellular telephone for accessing several tasks simultaneously.

BACKGROUND OF THE INVENTION

Because of their small size, the Liquid Crystal Display (LCD) screen of a wireless cellular telephone, are limited in what they can display. Before now, there has not been such a device which provides multiple viewing images straight ahead and obliquely on each side.

Frequently a cell phone, may have multi-tasks to be accomplished while using a cell phone, such as talking and also checking e-mail or Internet services. Traditionally the user sequentially accesses each of the tasks separately.

Furthermore, Web based cellular telephones are known, but their use is limited by the small screen size of the built-in liquid crystal display thereon.

OBJECTS OF THE INVENTION

It is therefore an object of the present invention to provide a wireless telecommunications unit, such as a cellular telephone, with a central screen located straight ahead and side screen wings located obliquely on each side.

It is therefore an object of the present invention to provide a cellular telephone with user-variation of displays.

It is yet another object of the present invention to provide an electronic visual display including at least one central display screen and at least two additional screens respectively disposed foldably to the right and left of said central screen.

It is yet another object of the present invention to allow a computer Internet user to displaying and access multiple displays simultaneously.

BRIEF SUMMARY OF THE INVENTION

A wireless telecommunications unit with an electronic visual display includes at least one central display screen and at least two additional screens respectively disposed foldably to the right and left of the central screen, for displaying simultaneous, multiple images to user.

In one embodiment the centrally disposed display is a monitor attached to alternate right and left displays by hinged attachments, such as by mortise-and-tenon-style plug-in tab-into-matching-aperture attachments or by hinged attachments.

This embodiment may be miniaturized in a hand-held computerized multi-media display cellular telephone with one or more foldable displays for displaying images to a game player.

This hand-held body has a keypad for input from a user; and a visual, and audio displays. This small cell phone may have a central display screen and at least two additional screens respectively disposed foldably or slidably to the right and left of the central LCD screen.

The cell phone includes sound-producing amplifiers.

Moreover, the oblique right and left computer display screens may be attached hingedly to the body of the cell phone. In this case, the hingedly attached right and left screens fold between an outward deployed position and an inward storage position.

The right and left computer display screens may also be attached slidably with a spring-deployment sub-housing within the body of the cell phone, wherein the slidably attached right and left screens slide with urging from the spring-deployment members between an outward deployed position and an inward storage position.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention can best be understood in conjunction with the accompanying drawings, in which:

Fig. 1 is a Perspective view of a wireless telecommunications unit embodiment utilizing integral rotating secondary screens.

Fig. 2 is a Perspective view of wireless telecommunications unit a utilizing plug-in separate accessory screens.

Fig. 3 is a Perspective view of an enhanced cell phone with multiple screens deployed.

Fig. 4 is a Top view of an enhanced cell phone with single screen in use.

Fig. 5 is a block diagram of one embodiment for a system control for the images electronically displayed in discrete segments.

Fig. 6 is a block diagram of another alternate embodiment for a single system control for the images electronically displayed in a continuous image.

Fig. 7 is a block diagram of a further alternate embodiment for a multiple system control for the images electronically displayed in a continuous image.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figures 1 and 2 show embodiments of a foldable wireless telecommunications device, such as a cell phone or other two-way wireless device which uses three separate flat screen displays (such as LCD's).

In Figure 1 central display screen 40 is flanked by side screens 41 and 42 which swing out from the sides of screen 40 on hinges.

Figure 2 shows an alternate embodiment wherein the smaller side screens 46 and 47 are removable, but they plug into central screen 45 for use wherein they are at a fixed angle.

Figures 3 and 4 show two views of cell phone 100 equipped with three LCD panels which store on top of one another (see Figure 4) and can be deployed in an ergonomic manner with one hand as in Figure 5. Panel 101 is in a fixed position relative to the housing and it is wired permanently at edge 115. Track 102 on the top and bottom guides second panel 104 to pull out and then rise into a co-planar position with screen 101.

Similarly, track 103 on screen 104 guides screen 105 to pull out further and rise into a co-planar position with screen 104. The set-up is a one-handed operation from the configuration of Figure 4 by grasping handle 106 and pulling out in one sweeping motion. Then a slight straight push back operates connectors at 116 and 117 so that the three panels have almost negligible separation between panels.

To store the two extra panels, the user simply re-extends to separate the connectors and tilt slightly up as the panels are manually pushed back. The tracks guide the panels back into storage position. Note that the single screen can be used for short messages.

With the three screens deployed, the full width of an SVGA display can be read albeit at reduced height. Simple scrolling can then be used to view normal screen contents in a near normal format. Configurations with from two to five panels are practical. Instead of being co-planar, the screens may be observable obliquely when hingably moved out in a configuration similar to the previous embodiments for a computer multi-task screen display assembly.

In the embodiments shown in figures 1 through 4, with multiple attached screens, each screen element (such as 40,41 and 42 of Figure 1, 45,46 and 47 of Figure 2 or 101, 104 and 105 in Figure 3) may have its own driver electronics, or be centrally controlled. The display content of each of the screens is determined by the controlling software as by the graphic or text numeric pixel image data accumulated in a screen image buffer associated with each of the screens. A typical example of image software is ADOBE ACROBAT® among others known to those skilled in the art.

In this manner, three distinct but related functional images can be displayed, or a continuous graphic panoramic view (or wide text segment) can flow from the left-most screen across the center screen and then to the right screen

element. This is completely under software format control, and the assigned function of each screen element can change from one content phase to another within the same application as desired.

While the configurations shown in figures 1 and 2, with substantial gaps between screen elements, are more amenable to the functional image use, a continuous panoramic display here could still closely simulate a continuous image, such as a series of stock quotes, a paragraph of word processing text, a digital photograph or images from a hand held video game, such as the windshield and two side windows of a vehicle, such as a small aircraft cockpit.

For example, for the discrete separable images in the block diagram of Figure 5, a user inputs separate instructions, such as with a mouse, stylus, touch screen or other input device such as known to those skilled in the art, for each screen, so that each screen will have a discrete separate image, wherein each screen has its own driver electronics controlled by imaging software. For example, while the following is illustrative only, a user may have a first image relating to a commercial e-mail communication in one screen, such as stock quotes or sports results. In addition, the user may have a second image relating to an instant message chat communication in another screen. Moreover, the user may have a third image relating to a data display, such as a list of telephone numbers, in a third screen.

For the continuous images, the block diagrams of Figures 6 and 7 may be employed. In Figure 6, each screen displays a portion of an image, which may be three discrete images, such as the left side, front and right side of an architectural rendering of a building, displayed together. However in Figure 7, a single image is displayed, such as a paragraph of word processing or messenger text, a series of statistics, such as sports events results, or a wide, panoramic image, such as a single digital photographic image or animated display, whereby the three screens are controlled by a single user input and by a single driver controlled by a unit of image software.

It is further noted that other embodiments and changes may be made to the present invention without departing from the scope of the invention, as noted in the appended Claims.